In the Claims

Please cancel Claims 1-6 (without prejudice) and add the following new Claims 7-33:

7. (Added)   A method of intrusion detection, comprising:

transmitting a first impulse radio signal from a first location;

receiving the first impulse radio signal at a second location, said second location being separate from said first location, said first location and said second location associated with a protection zone;

generating a first waveform which is a time domain representation of the received first impulse radio signal that indicates an actual distortion of the transmitted first impulse radio signal;

transmitting a second impulse radio signal from the first location;

receiving the second impulse radio signal at the second location;

generating a second waveform which is a time domain representation of the received second impulse radio signal that indicates an actual distortion of the transmitted second impulse radio signal; and

comparing the first waveform and the second waveform to determine whether there is a change between the first waveform and the second waveform indicative of an intruder entering the protection zone.

8. (Added)   The method of Claim 7, wherein said change between the first waveform and the second waveform is a multipath reflection part caused by the intruder.

9. (Added)   The method of Claim 7, further comprising the steps of:

receiving at least one of the first impulse radio signal and the second impulse radio signal at a third location and a fourth location, said third and fourth locations being separate from each other and said first and second locations;

determining a position of the intruder within the protection zone.

10. (Added)   The method of Claim 9, further comprising the step of:

creating a shape of the protection zone by determining a current position of a test subject and tracking the movement of the test subject to outline the shape of the protection zone by repeating the transmitting, receiving, generating and comparing steps needed to determine the position of the intruder but instead to track the test subject so as to create the shape of the protection zone.

11. (Added) A method of intrusion detection, comprising:

generating a first waveform which is a time domain representation of a received first impulse radio signal that indicates an actual distortion of a transmitted first impulse radio signal;

generating a second waveform which is a time domain representation of a received second impulse radio signal that indicates an actual distortion of a transmitted second impulse radio signal; and

comparing the first waveform and the second waveform to determine whether there is a change between the first waveform and the second waveform indicative of an intruder entering a protection zone.

12. (Added) The method of Claim 11, wherein said change between the first waveform and the second waveform is a multipath reflection part caused by the intruder.

13. (Added) The method of Claim 11, further comprising the steps of:

receiving at least one of the first impulse radio signal and the second impulse radio signal at two or more impulse radio receivers; and

determining a position of the intruder within the protection zone, wherein the steps of generating a first waveform, generating a second waveform, and comparing said first waveform and second waveform are performed at another impulse radio receiver.

14. (Added) The method of Claim 13, further comprising the step of:

creating a shape of the protection zone by determining a current position of a test subject and tracking the movement of the test subject to outline the shape of the protection zone by repeating the generating and comparing steps needed to determine the position of the intruder but instead to track the test subject so as to create the shape of the protection zone.

15. (Added) A method of intrusion detection, comprising:

transmitting a plurality of impulse radio signals from a first location;

receiving the plurality of impulse radio signals at a second location, the second location being separate from the first location;

generating a plurality of waveforms, each of the plurality of waveforms being time domain representations of one of the plurality of impulse radio signals received at the second location that indicates an actual distortion of the corresponding one of the transmitted plurality of impulse radio signals; and

comparing two of said plurality of waveforms to determine whether there is a difference between the two of said plurality of waveforms that is indicative of an intruder entering a protection zone.

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16. (Added) The method of Claim 15, wherein said change between the two of said plurality of waveforms is a multipath reflection part caused by the intruder.

17. (Added) The method of Claim 15, further comprising the steps of:

receiving the plurality of impulse radio signals at a third location, the third location being separate from the first and second locations;

receiving the plurality of impulse radio signals at a fourth location, the fourth location being separate from the first, second, and third locations;

determining a position of the intruder within the protection zone.

18. (Added) The method of Claim 17, further comprising the step of:

creating a shape of the protection zone by determining a current position of a test subject and tracking the movement of the test subject to outline the shape of the protection zone by repeating the transmitting, receiving, generating and comparing steps needed to determine the position of the intruder but instead to track the test subject so as to create the shape of the protection zone.

19. (Added) A security system comprising:

a transmitting impulse radio unit for transmitting a first impulse radio signal and a second impulse radio signal from a first location;

a receiving impulse radio unit for receiving the first impulse radio signal and the second impulse radio signal at a second location, said second location being separate from said first location, said first location and said second location associated with a protection zone;

said receiving impulse radio unit for generating a first waveform which is a time domain representation of the received first impulse radio signal that indicates an actual distortion of the transmitted first impulse radio signal;

said receiving impulse radio unit for generating a second waveform which is a time domain representation of the received second impulse radio signal that indicates an actual distortion of the transmitted second impulse radio signal; and

a processor for comparing the first waveform to the second waveform to determine whether there is a change between the first waveform and the second waveform caused by an intruder entering a protection zone.

20. (Added) The security system of Claim 19, wherein said first impulse radio signal and the second impulse radio signals have the same form but they are transmitted at different times.

21. (Added) The security system of Claim 19, wherein said change between the first waveform and the second waveform is a multipath reflection part caused by the intruder that was absent in the first waveform but present in the second waveform.

22. (Added) The security system of Claim 19, further comprising at least two more receiving impulse radio units located in different locations the presence of which enables a current position of the intruder to be determined within the protection zone.

23. (Added) The security system of Claim 22, wherein said transmitting impulse radio unit is capable of interacting with each of the receiving impulse radio units to track the movement of a test subject so as to create a shape of the protection zone.

24. (Added) The security system of Claim 19, wherein said receiving impulse radio unit is an ultra-wideband scanning receiver.

25. (Added) An intrusion detection system comprising:

a processor for generating a first waveform which is a time domain representation of a received first impulse radio signal that indicates an actual distortion of a transmitted first impulse radio signal;

said processor for generating a second waveform which is a time domain representation of a received second impulse radio signal that indicates an actual distortion of a transmitted second impulse radio signal; and

said processor for comparing the first waveform and the second waveform to determine whether there is a change between the first waveform and the second waveform indicative of an intruder entering a protection zone.

26. (Added) The intrusion detection system of Claim 25, wherein said change between the first waveform and the second waveform is a multipath reflection part caused by the intruder.

27. (Added) The intrusion detection system of Claim 25, wherein:

receiving at least one of the transmitted first impulse radio signal and the transmitted second impulse radio signal at two or more impulse radio receivers; and

determining a position of the intruder within the protection zone, wherein another impulse radio receiver includes said processor.

28. (Added) The intrusion detection system of Claim 27, wherein said processor for creating a shape of the protection zone by determining a current position of a test subject and tracking the movement of the test subject to outline the shape of the protection zone by repeating the generating and comparing steps needed to determine the position of the intruder but instead to track the test subject so as to create the shape of the protection zone.

29. (Added) A security system comprising:

a transmitting impulse radio unit for transmitting a plurality of impulse radio signals from a first location;

a first receiving impulse radio unit for receiving the plurality of impulse radio signals at a second location, the second location being separate from the first location;

a processor for generating a plurality of waveforms, each of the plurality of waveforms being time domain representations of one of the plurality of impulse radio signals received at the second location that indicates an actual distortion of the corresponding one of the transmitted plurality of impulse radio signals; and

said processor for comparing two of said plurality of waveforms to determine whether there is a difference between the two of said plurality of waveforms that is indicative of an intruder entering a protection zone.

30. (Added)   The security system of Claim 29, wherein said change between the two of said plurality of waveforms is a multipath reflection part caused by the intruder.

31. (Added)   The security system of Claim 29, further comprising:

a second receiving impulse radio unit for receiving the plurality of impulse radio signals at a third location, the third location being separate from the first and second locations;

a third receiving impulse radio unit for receiving the plurality of impulse radio signals at a fourth location, the fourth location being separate from the first, second, and third locations; and

said processor for determining a position of the intruder within the protection zone.

32. (Added)   The security system of Claim 31, wherein said processor for creating a shape of the protection zone by determining a current position of a test subject and tracking the movement of the test subject to outline the shape of the protection zone by repeating the transmitting, receiving, generating and comparing steps needed to determine the position of the intruder but instead to track the test subject so as to create the shape of the protection zone.

33. (Added)   The security system of Claim 29, wherein said first receiving impulse radio unit is an ultra-wideband scanning receiver.